ABSTRACT OF THE DISCLOSURE

An improved ε-removal method is disclosed that computes for any input weighted automaton A with ε-transitions an equivalent weighted automaton B with no ε-transitions. The method comprises two main steps. The first step comprises computing for each state "p" of the automaton A its ε-closure. The second step in the method comprises modifying the outgoing transitions of each state "p" by removing those labeled with ε. The method next comprises adding to the set of transitions leaving the state "p" non-ε-transitions leaving each state "q" in the set of states reachable from "p" via a path labeled with ε with their weights pre-⊗-multiplied by the ε-distance from state "p" to state "q" in the automaton A. State "p" is a final state if some state "q" within the set of states reachable from "p" via a path labeled with ε is final and the final weight $\rho[p] = \bigoplus_{q \in e[p] \cap F} (d[p,q] \otimes \rho[q])$.